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FINAL REPORT

ROUNDUP FIRE PROJECT
DSL - AMRB No. 90-E03

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FINAL REPORT

ROUNDUP FIRE PROJECT

DSL - AMRB No. 90-E03

Roundup

South-Central Montana

T8N, R25E, Section 23

January 11, 1991

Spectrum Engineering
Billings, Montana

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1. INTRODUCTION

1.1 Site Description

The Roundup Fire Project was located less than ½-mile southeast of Roundup in Lots 22, 23, 27, and 28 of the Prescott subdivision which is situated on the southeast side of U.S. Highway 12. The site is bounded by Mine Road, Placer Drive, and an abandoned channel of the Musselshell River. Mine Road turns off Highway 12 about 0.6 miles east of the intersection of Highway 87 and Highway 12.

The project was undertaken in response to a fire which was burning in a coal refuse pile. The coal refuse had been dumped along the bank of an abandoned channel of the Musselshell River during the operation of Roundup Coal Mining Company's No. 3 Mine. The No. 3 Mine was a large underground coal mine that operated from 1908 to 1963. The Roundup Coal Mining Company reportedly smothered an earlier fire in this refuse pile by laying a 2-foot thick earth seal over the top of the pile.

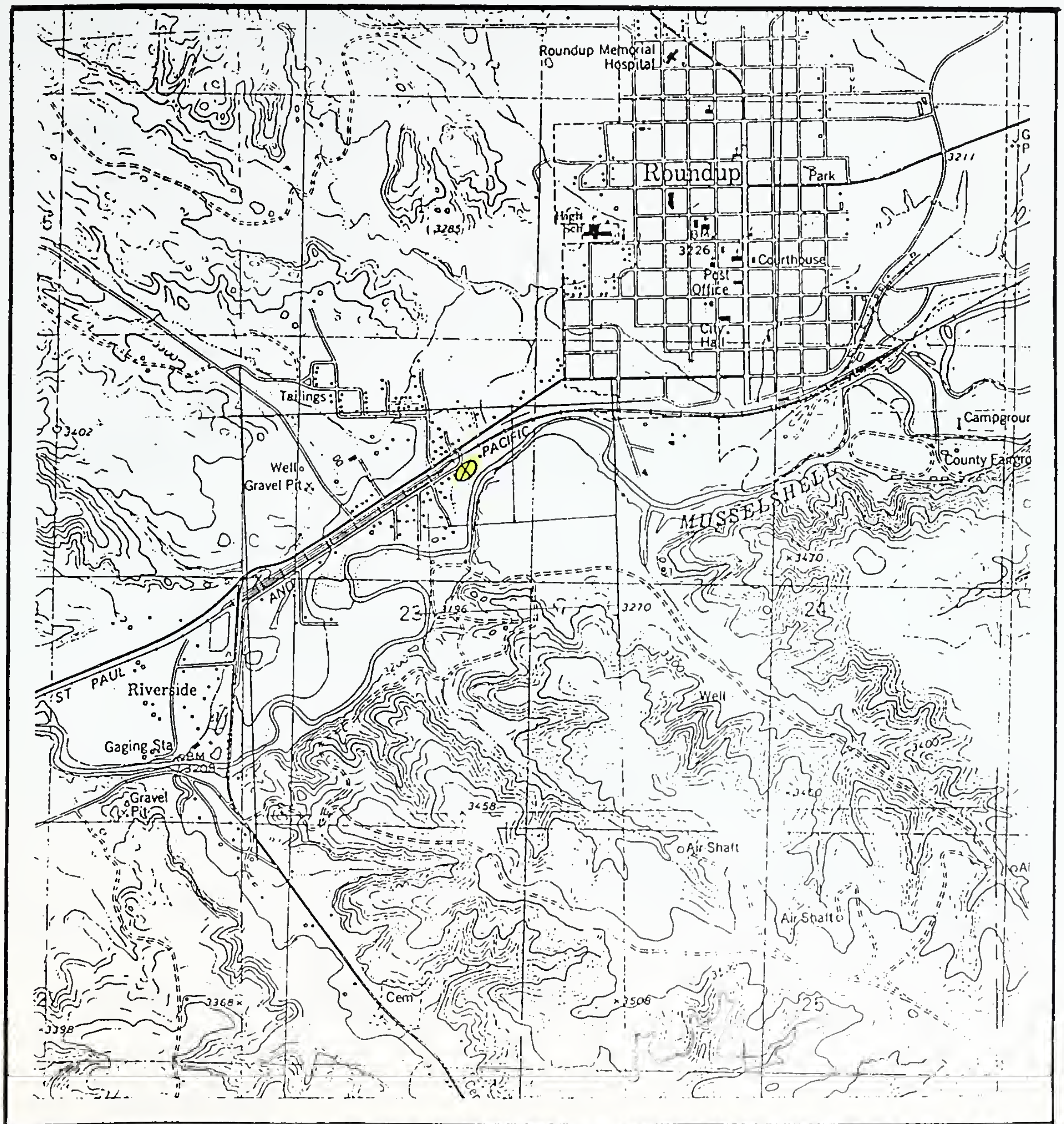
Several houses were ultimately built on and near the edge of this embankment. In 1980, Virgil Jones, who resides at 9 Placer Dr. in Roundup, acquired this property through a tax sale and subsequently demolished several of the houses. Bert Baldwin, who resides at No. 6 Mine Rd. in Roundup, purchased a portion of the affected land from Vergil Jones in 1990.

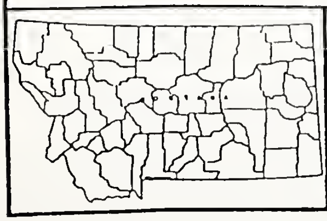
At the time of the project, only the home owned by Bert Baldwin remained near the edge of the refuse pile with the coal slack extending beneath one of his sheds. However, additional homes were located 100-500 feet from the site. The refuse covered an area 450 feet long by 50 - 100 feet wide and was 5 - 12 feet deep. When the project commenced hot spots were noted in several areas; but, the extent at the fire was unknown. Garbage had been dumped along the toe of the refuse pile and continued to accumulate in this area until the contractor moved his equipment onto the site. Cottonwood trees and brush covered the area along the toe of the dump. Grass and weeds covered much of the top of the pile.

In October 1990, the trunks of several cottonwood trees at the edge of the pile began smoldering. Within a few days, a grass fire ignited resulting in the destruction of a barn which had been located on the embankment. Debris from the destroyed barn and an accumulation of junk punctuated the general mess that characterized this area.

Because the fire had already destroyed one structure and was near several homes the project was deemed an emergency. Between the time the Montana Department of State Lands was first contacted and the mobilization of the contractor, landowners and the Roundup Fire Department monitored the fire.

1.2 Map Showing Mine Location(s)





STATE OF MONTANA — DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU—RECLAMATION DIVISION

LOCATION MAP

SITE ROUNDUP FIRE PROJECT
MUSSELSHELL COUNTY, MT; TOWNSHIP 8 N RANGE 25 E
SECTION(S) NW¼NE¼ SECTION 23
MAP SCALE: 1" = 2000' U.S.G.S. QUAD SHEET ROUNDUP, MONTANA

1.3 Project Objectives

The goal of this project was to extinguish a fire which has been burning in a large pile of coal slack and to prevent the recurrence of such fires in this material. Upon completion of this first objective, the disturbed area was to be revegetated with native grasses.

2. RESPONSIBLE PARTIES

2.1 Contractor

Donnes Construction
4002 McGirl Road
Billings, Montana 59105
Phone: 406/373-6601
MT Contractor's License: 5996 A

2.2 Reclamation Plan

Due to the emergency response, only general reclamation requirements were formulated prior to contractor selection. Plans conforming to the general requirements were formulated in the field to meet specific conditions. The plans as such were prepared by Spectrum Engineering, Billings, Montana.

2.3 Engineering Plan Prepared By

Spectrum Engineering
3302 - 4 Avenue North
Billings, Montana 59101
Phone: 406/259-2412

2.4 Quality Control Inspection

The inspecting Engineers were David M. Murja, Spectrum Engineering and Gary W. Rome, Spectrum Engineering.

2.5 AMRB Coordination

The Coordinator was Dan Koszuta, Montana Department of State Lands, Abandoned Mine Reclamation Bureau.

3. CHRONOLOGICAL LISTING OF EVENTS

3.1 Pre-Bid Conference

Date: October 23, 1990

3.2 Bid Date

Date: October 25, 1990

3.3 Three Lowest Bids

Donnes Construction Billings, Montana $14,450.00	Baxter Construction Billings, Montana $25,985.04	A third bid was not received

3.4 Contract Award

Donnes Construction
4002 McGirl Road
Billings, Montana 59105
Phone: 406/373-6601
MT Contractor's License: 5996 A

3.5 Notice of Award

Date: October 25, 1990

3.6 Notice to Proceed

Date: November 1, 1990

3.7 Construction Start-up

Date: November 2, 1990

3.8 Change Orders

There was one change order written for this project. A copy of that change order has been included in this report as ATTACHMENT 2. The change order was for a sum of $31,501.00.

3.9 Work Stoppages

There were no work stoppages on this project.

3.10 Requests for Payment

Firm	Amount	Date	Yes/No
Donnes Construction	$45,951.00	Jan. 3, 1990	Yes

3.11 Substantial Completion

Date: November 20, 1990

3.12 Final Completion and Approval

Date: November 20, 1990 - The Certicicate of Completion was submitted on Dec. 4, 1990.

3.13 Final Payment(s)

Firm	Amount	Date Approved
Donnes Construction	$45,951.00	Jan. 7, 1990

A copy of the final payment request has been included at ATTACHMENT 3.

4. CONSTRUCTION

4.1 Description of Project Plan

The goal of this project was to extinguish a fire which had been burning in a coal waste embankment and to prevent the recurrence of such fires in this material. All burning and/or hot materials were to be excavated and quenched with water. The entire coal waste embankment was to be excavated and rebuilt in well-compacted layers. Major items of work associated with this project included disposing of debris and trees, excavating an initial disposal pit, providing water to extinguish all burning material, compacting all coal waste, disposing of the waste pile, neutralizing coal slack areas, salvaging and spreading topsoil, revegetating disturbed areas, and repairing any existing fence damaged by the work.

It was estimated that the waste embankment was 400 to 500 feet in length and was 50 feet in width. Less than 6 feet of coal waste was believed to have been dumped in this area. The property owner had a number of pieces of equipment (mostly old farm implements) stored on or around the embankment. The embankment had also been utilized to some degree as a garbage dump.

About 10 cottonwood trees had been partially buried by the coal waste. These trees were all located along one edge of the pile. The trunks and roots on several of these trees were smoldering. The fire in this waste embankment had recently ignited dry grass which in turn caused the destruction of a barn which had been located on the embankment. The extent of the fire within the embankment was unknown.

SITE PREPARATION

- Collect and remove approximately 5 truck loads of site debris.
- Remove up to 100 feet of fence which crosses the coal waste area.
- Move the property owner's equipment from the work area.
- Clear and grub trees in the work area. All trees will be stacked on the site so that the property owner may utilize them for fire wood. The contractor will be required to dispose of the roots.
- Salvage all topsoil and other organic materials covering the coal wastes and the initial disposal pit.
- Install a portable pump with sufficient hose to obtain water directly from the Musselshell river. It is estimated that the elevation of the river is 10 to 15 feet below the elevation of the top of the pile. The river is approximately 150 feet from the nearest edge of the waste pile.

COAL WASTE DISPOSAL AND TREATMENT

- The initial disposal pit will be excavated at one end of the waste pile. The initial excavation must extend to the bottom of the coal waste embankment and should primarily be situated in the coal waste. Because this material must be stockpiled and rehandled near the end of the operation, the size of the pit should be kept to a minimum.

- The segment of the waste embankment which lies adjacent to the disposal pit will then be excavated and moved to the open disposal pit. This material will be deposited in layers which are not to exceed 6 inches in thickness and will be compacted. The complete excavation of this segment of the waste embankment will provide the next available disposal area. Subsequent strips along the embankment will be handled in like fashion until the last area to be excavated is filled with the material which was stockpiled from the initial disposal pit.

- As burning material is uncovered, it will be thoroughly cooled with water which will be pumped directly from the river. This material will then be compacted along with the other coal waste in the disposal area which is being worked at that time.

- The surface of the disposal area will be contoured to blend with the existing terrain.

- The disposal areas will be neutralized with an application of lime at the rate of 14 tons/acre.

- All stockpiled topsoil will be replaced on the disturbed area.

- Additional topsoil may be borrowed as required to provide 6 inches of cover over the disposal area.

- All disturbed areas will be revegetated.

- Any fence that has been damaged by these operations will be repaired or replaced.

4.2 Major Equipment List

Type	Make/Model	No. on Job
Bulldozer with Ripper	Caterpiller/D7	1
Wheel Tractor-Scraper	Terex/TS-14	1
Wheel Loader	International/530	1
Light Plant	Caterpiller/IIICELR	1
Pumps	Various	3
Dump Truck	AutoCar/Constructor 18 yd^3	1
Dump Truck	KW/12 yd^3	1

4.3 Contractor Employees

The number of contractor employees on the job was 2 to 5.

4.4 Construction Activities

As planned, the entire coal waste pile was excavated and rebuilt in well-compacted layers. All burning and/or hot materials were cooled before being incorporated in the fill. The pile was excavated in a series of cut and fill sections which permitted the refuse pile to be substantially rebuilt in place. However, the actual extent of the refuse pile, the extent of the burned area within the pile, and the accumulation of debris along the edge of the pile all proved to be greater than initially expected. In addition, the topsoil in the site was too thin and mixed with too much debris to successfully recover and utilize or a cover medium. These conditions caused changes in both anticipated quantities, and construction requirements.

It should be noted that areas of this refuse pile had burned perhaps 30 years ago. At that time a contractor had done some grading and filling in an attempt to seal the fire. When the site was visited in anticipation of the emergency project, the fire appeared to be burning along a well-exposed face of the embankment; this face was 4 to 6 feet in height. The total area influenced by this structure was concealed by the earlier work.

During the course of the construction activities, we found that the embankment extended along the edge of Mine Drive for a distance of 100 feet. The coal slack was only 2 feet thick at the edge of the road and was cool. Because a telephone cable with 300 pair of wires was buried in this area, the telephone company was requested to spot the cable and observe the excavation in this area.

We also found that the slack extends beneath several of the sheds owned by Bert Baldwin. Again, the slack was only 1 to 2 feet thick where these buildings are located. This thin layer of refuse was cool and does not appear to pose any danger to the structures.

On the Baldwin property, the coal wastes were much deeper than on the Jones side. In places we excavated to a depth of 10 to 12 feet before reaching the bottom of the pile. On an average, this portion of the pile was around 8 feet thick.

Between the Baldwin property and the Jones property, there was a large burned-out area that appeared as a swale in the topography. On both sides of this area the coal slack was hot. An old house once sat at the north end of the embankment. It is reported that the fire department burned this house down a number of years ago. The north end of the embankment proved to have a greater concentration of hot and burning material than any other area. Warm spots were encountered throughout the pile.

On Bert Baldwin's property there was a tremendous accumulation of debris. Three houses had been burned and torn down on this property. The debris had been pushed over the side of the coal waste embankment. The area along the edge of the embankment had also been used as a local garbage dump as evidenced by cans, bottles, auto parts, asphalt and other garbage. To a lesser extent, the Jones property had also been used as a dump.

Due to these changes, construction activities had to be extended beyond the original scope of the project. Actual construction activities are summarizes as follows:

SITE PREPARATION

- Debris was burned and buried in a disposal pit which was excavated along the toe of the Baldwin embankment.
- 130 feet of fence was removed.

- The property owner's equipment was moved from the work area.

- The work area was increased to accommodate the larger than anticipated volumes of debris and refuse. These areas were cleared and grubbed. All trees were stacked on the site for the landowner's use.

- Portable pumps were installed in the Musselshell River. The pumping system had to be upgraded to provide the increased water requirements of the larger than anticipated pile.

- Due to the lack of usable soil on the surface of the embankment, a 50' by 150' borrow area was excavated on the Jones property between the embankment and the river. This sandy material was stockpiled for later use as a seal.

COAL WASTE DISPOSAL AND TREATMENT

- The pit developed in the sand borrow area was used as the initial coal waste disposal pit.

- The Jones embankment was handled first. This material was treated and deposited in the initial disposal pit.

- The Baldwin embankment was then handled in a series of segments that looped around and ended adjacent to the first cut. Material from the first several segments was hauled to the Jones disposal area. A significant portion of this material was stockpiled on top of the Jones disposal area.

- After excavating to the limits of the embankments, the final pit was filled with compacted coal waste which had been stockpiled.

- All coal slack was replaced in thin layers and compacted by wheel rolling.

- As burning material was uncovered, it was thoroughly cooled with water which was pumped directly from the river. This material was compacted along with the other coal waste in the disposal area which was being worked at that time.

- The disposal areas were neutralized with a veneer of finely crushed limestone at the rate of 14 tons/acre.

- All stockpiled sandy soil was spread evenly over the disturbed area.

- Additional material was excavated from the Jones property and directly spread on the disturbed areas.

- Topsoil was borrowed from an existing borrow area 6 miles from the project. This material was spread evenly over the sand seal.

- The entire disturbed area was fertilized, drill seeded, and mulched.

- 130 feet of fencing was replaced and 100 feet was repaired.

A chronological summary of construction activities follows:

November 2	Mobilize: Bulldozers, wheel loader, pumping equipment and hay blower. Stabilize fire conditions on the Jones property by clearing and grubbing trees near the fire, clearing combustible materials from the area, and pushing burning coal refuse into a pile and cooling that material with water. Removed the fence between the Baldwin and Jones properties. Install portable pump in the Musselshell River.
November 3-4	Dan Koszuta monitored the site for fresh outbreaks of the refuse fire during the weekend shutdown.
November 5	Burned combustible debris on site. Set up water supply system with pumps in series. Clear and grub: debris disposal pit, refuse disposal area and sand borrow area. All trees which have been uprooted are moved into an area where the property owner could cut them into firewood. These roots are burned.
November 6	Mobilize scraper to project. Excavate and stockpile sand for seal. Excavate debris disposal pit along toe of Baldwin embankment and bury the debris. Cut exploration trench in Baldwin embankment and expose hot material. Begin mixing and quenching the hot material in place.
November 7	Complete excavation and stockpiling sand. Bury debris along outer edge of the borrow pit. Excavate, cool and dispose of Jones embankment in remaining portion of the borrow pit. Excavate first cut of coal refuse on Baldwin embankment and haul to Jones disposal area where the material is quenched, mixed and compacted. Begin quenching coal refuse in the first Baldwin cut and then placing this material over the Jones disposal area.
November 8	Brought in and installed higher capacity pump. Finished top of first cut on Baldwin embankment. This material is mixed and cooled in the cut and placed in the Jones disposal area. Worked bottom lift on first cut of Baldwin embankment stockpiling this treated material over the Jones disposal area. Start to excavate around the end of the Baldwin embankment near the road. This material is placed in the first Baldwin cut.
November 9	Brought in a light plant. Worked end of Baldwin embankment with dozer and loader working hot material and scraper hauling the treated material to the first Baldwin cut. Begin to work top lift of second Baldwin cut. Treated material is stockpiled over the material that has been placed in the first Baldwin cut.

November 10	Treat coal slack in second Baldwin cut placing treated material at the end of the Baldwin embankment.
November 12	Expose edge of the coal slack along the length of the Baldwin embankment.
	Fill in final pit along the second Baldwin cut with stockpiled coal slack.
	Grade surface of the compacted fill.
	Receive crushed limestone.
November 13	Spread crushed limestone.
	Scarify surface of regraded refuse.
	Cover surface with sand from stockpile.
	Excavated soil beneath sand stockpile and spread it over disposal areas.
	Tie in edges around disturbed areas by back dragging soil onto the filled area.
	Recontour area.
November 14	Mobilize trucks to haul topsoil.
	Haul in gravel to repair the segment of Baldwin's drain field that had been in the embankment.
November 15	Haul topsoil.
	Start to spread topsoil.
November 16	Haul topsoil.
	Spread topsoil.
	Demobilize trucks.
	Repair fence along Rech/Baldwin property line.
November 18	Repair Baldwin's drain field.
November 19	Mobilize tractor, spreader, crimper, seed drill, and fertilizer.
	Fertilize
	Drill seed.
	Mulch with grass hay and blower.
	Crimp.
	Demobilize equipment.
November 20	Replace fence between Jones and Baldwin properties.
	Final inspection with Dan Koszuta.

4.5 Quantities Used

Item	Amount	Unit Cost
Salvage and replace sandy soil	2,158.0 yd^3	\$ 2.00/yd^3
Disposal pit rehandle	1,600.0 yd^3	\$ 0.50/yd^3
Waste pile disposal	8,380.0 yd^3	\$ 2.56/yd^3
Direct place soil	300.0 yd^3	\$ 2.00/yd^3
Import topsoil	800.0 yd^3	\$10.00/yd^3
Lime placement	1.3 acres	\$1,500/Ac
Fertilize, seed and hay mulch	1.3 acres	\$1,000/Ac
Provide water	Lump Sum	\$ 0.49/yd^3 of refuse

5. PAYMENT REQUESTS

5.1 Pay Request

One pay request was processed for this project. A copy of this pay request has been included as ATTACHMENT 3.

5.2 Cost per Site

Site Name	Amount	Cost/Acre
ROUNDUP FIRE	\$45,951.00	\$34,346.92

5.3 Total Project Cost

The construction cost for the project was \$45,951.00. This cost results from an origional bid of \$14,450.00 and a change order for \$31,501.00. The change order accounted for 69% of the construction cost. The total engineering cost for the project was \$14,524.62. Therefore, the total project cost was \$60,475.62. An analysis of the engineering costs incurred by this project is presented in ATTACHMENT 4.

6. PROJECT SUMMARY

6.1 Summary of Project

Although reclamation and abatement requirements increased during the course of the project, Donnes Construction completed the project in the allowable contract time using 19 of the 21 days available. During the project 8,380 cubic yards of coal waste was excavated in a series of cut and fill sections which permitted the refuse pile to be substantially rebuilt in place. The majority of material which was encountered had either burned or was burning. After rebuilding the embankment in compacted layers, the area was covered with 1½ feet of soil. The project was completed just prior to the first significant snowfall of the season.

Only the most casual of efforts were made to make preconstruction estimates of quantities for this emergency project. The under-estimation of quantities resulted in a substantial change in the contract price. However, both the engineering representative and the contractor had anticipated changes due to the nature of the project and cooperated to successfully complete the project.

6.2 Site Condition after Completion

With the exception of a small area where structures had been erected over what is believed to be a thin layer of coal slack, the entire disposal area was regraded and revegetated. At the completion of this project, there was no remaining evidence of burning coal waste; and, the area within the construction limits had received a 1½ foot thick blanket of sandy soil and topsoil.

Due to the compactive effort which was applied and the amount of burned material which was encountered, the average elevation of the land was decreased. The characteristic flat surface of the embankment with its abrupt slope along the edge, has been changed to a surface which gently slopes down to meet the contours of the adjacent land along the Musselshell River. The embankment which had been a dump site with a tangle of trees and brush along it toe is now an open field.

6.3 Maintenance or Follow-up

This site should be checked next spring to access revegetation success. Because it is situated on the outskirts of Roundup with a number of homes nearby, site revegetation is considered particularly important due to the potential for blowing dust.

During the project we had considered taking auger samples around the Baldwin residence to determine the status of the coal waste near the buildings. Although there was only a very thin layer of coal slack visible in the final wall along the edge of the excavation, the AMR Bureau might consider documenting the total extent of the coal waste fill in this area. See COMMENTS/SUGGESTIONS.

6. PROJECT SUMMARY

6.1 Summary of Project

[illegible]

[illegible]

6.2 [illegible]

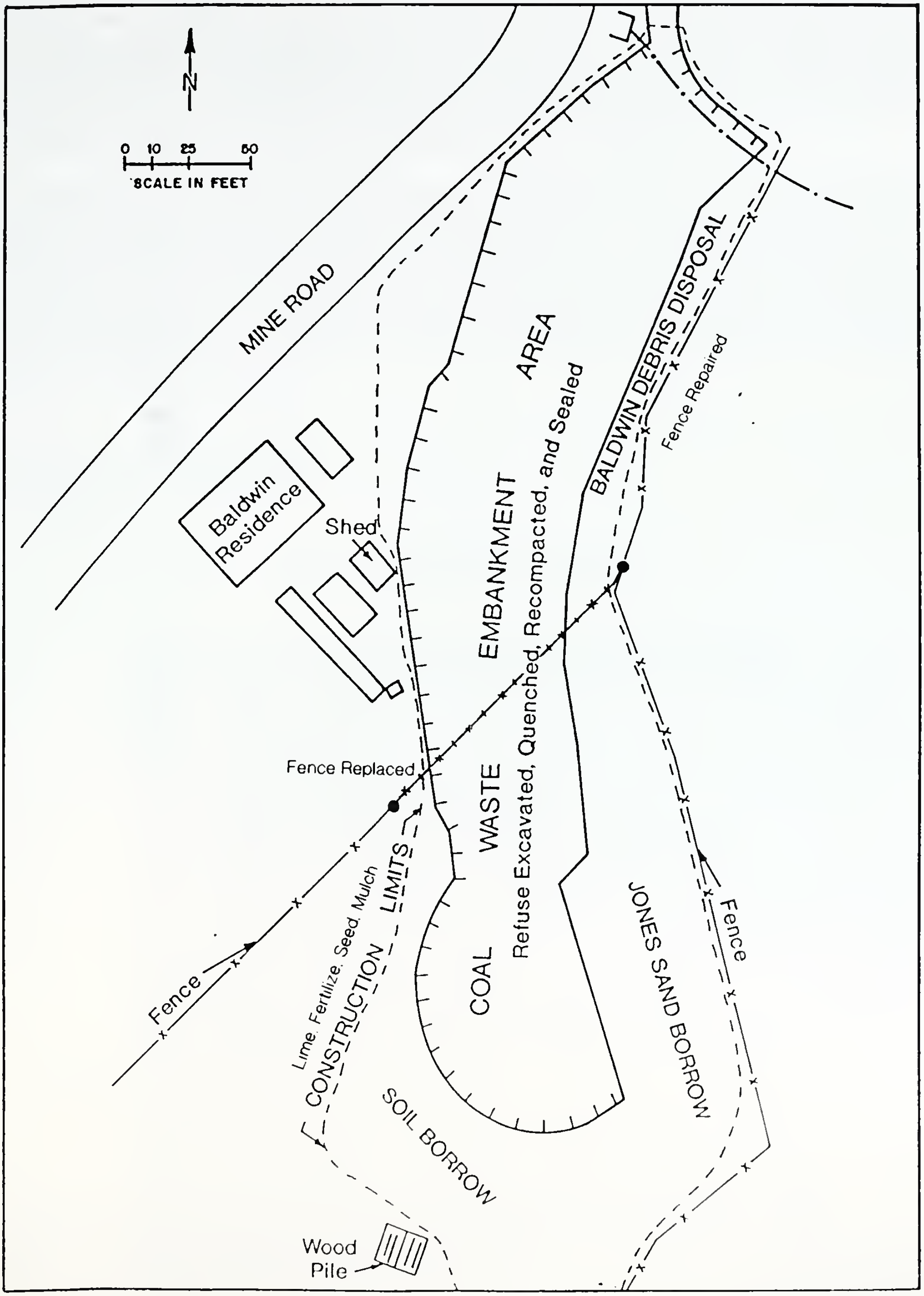
[illegible]

[illegible]

6.3 [illegible]

[illegible]

6.4 As-Built Drawings



7. COMMENTS/SUGGESTIONS

If structures had not been located on what appeared to be a thin lens of cool coal slack on the edge of the embankment near the Baldwin residence, we would have opted to excavate all of this material. Although these structures appeared to have very little value, they did represent a potential acquisition and disposal problem. Consequently we opted not to disturb these structures due to the small hazard represented by this minor amount of coal slack. If there is some problem in the future, it will be the result of some careless action by man, ie. dumping hot ashes, burning weeds, etc.

On this project, land boundaries and the presence of structures put an almost absolute constraint on the amount of land that could be included within the construction zone. We ended up using all of the available land to dispose of the coal waste and blend the contours. By locating the primary soil borrow area below the refuse pile, increasing the borrow quantity, and then utilizing this excavation as the initial disposal pit, we were able to provide some much needed flexibility. When we encountered greater than anticipated quantities of refuse, as we moved north from the initial excavation, the large disposal area absorbed much of the excess material. By disturbing this chunk of land at the outset, we got a better overall job.

8. PHOTOGRAPHS/SLIDES

8.1 Listing

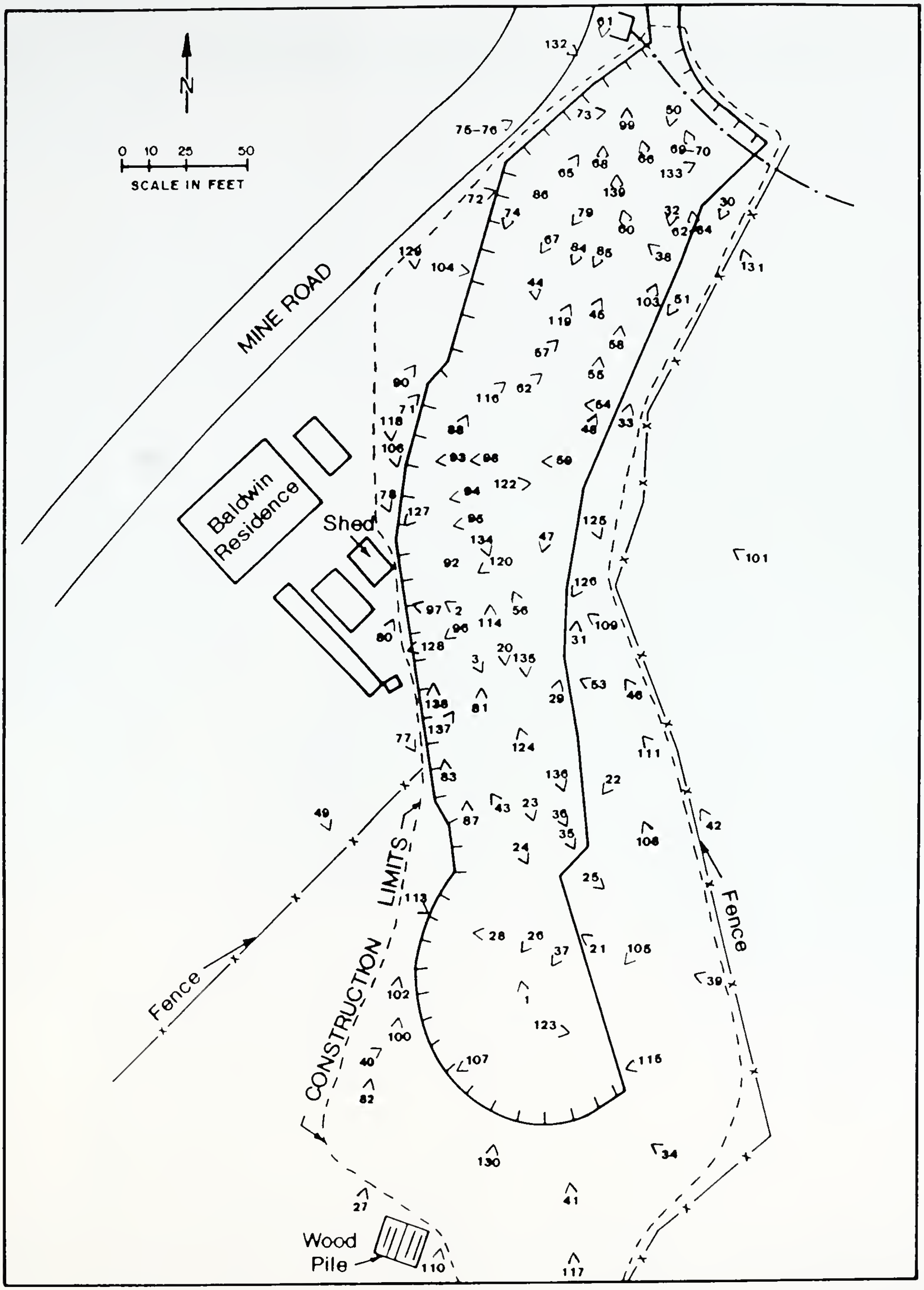
List of the Roundup Fire Photographs

1	Preconstruction photo looking across the Jones portion of the coal waste embankment toward Mine Drive. The cottonwoods are growing along the toe of the embankment. 11/02/90
2	Preconstruction photo looking toward the Bert Baldwin residence and other buildings located on his property. 11/02/90
3	Preconstruction photo looking from the toe of the waste embankment toward the Vergil Jones residence. 11/02/90
4	Contractor Equipment: Caterpiller D7 Bulldozer with ripper. 11/08/90
5	Contractor Equipment: Terex TS-14 Scraper. 11/06/90
6	Contractor Equipment: International 530 Wheel Loader. 11/15/90
7	Contractor Equipment: Lowboy and 18 CY Autocar Dump Truck. 11/16/90
8	Contractor Equipment: 12 CY KW Dump Truck. 11/15/90
9	Contractor Equipment: Caterpillar Light Plant. 11/10/90
10	Contractor Equipment: 6-inch Pump. 11/08/90
11	Contractor Equipment: John Deere Backhoe. 11/18/90
12	Contractor Equipment: Strawblower. 11/19/90
13	Contractor Equipment: John Deere Seed Drill and Crimper. 11/19/90
14	Contractor Equipment: Willmar Fertilizer Spreader. 11/19/90
15 thru 17	Farm equipment moved out of construction zone. 11/16/90
18	Pump installed in Musselshell River. 11/02/90
19	6-inch pump installed in sump providing water for cooling and compacting. 11/08/90
20	Removing fence. 11/02/90
21	Initial Response: Cooling burning coal refuse where outbreak of fire occurred. 11/02/90
22	Initial Response: Fire outbreak contained by clearing grass, trees, and refuse. 11/05/90
23 thru 24	Clearing and grubbing cottonwoods along the edge of the refuse embankment. 11/02/90
25	Clearing and grubbing the sand borrow area. 11/05/90
26	Refuse clean-up. 11/05/90

27	Burning combustible debris, brush, roots, and tree branches. 11/05/90
28	Debris from the barn which burned at this site. 11/02/90
29	Some of the debris which had been dumped on the waste embankment near the Baldwin residence. 11/02/90
30	Debris exposed along the edge of the Baldwin embankment after clearing a trail along the toe. 11/05/90
31	Burning combustible debris. 11/05/90
32	Push loading the TS-14 during excavation of the debris disposal pit. 11/06/90
33	Debris disposal pit cut along the toe of the Baldwin embankment. 11/06/90
34	Starting to stockpile sandy soil to seal the waste disposal areas. 11/06/90
35	Salvaging sandy soil and preparing a waste disposal area. 11/06/90
36	Salvaging sandy soil and preparing a waste disposal area. 11/07/90
37	Sandy soil stockpile. 11/09/90
38	Exploration cut. 11/06/90
39 thru 42	Working the Jones side of the embankment. 11/07/90
43	Excavating through a burned area to connect the Jones and Baldwin sides of the embankment. 11/08/90
44	First Cut on the Baldwin Side: Cooling refuse at the top of the cut. 11/07/90
45	First Cut on the Baldwin Side: Cooling and excavating refuse. 11/08/90
46	First Cut on the Baldwin Side: Scraper excavating refuse unassisted. 11/08/90
47	First Cut on the Baldwin Side: Scraper hauling refuse out of the cut to the Jones disposal area. 11/08/90
48	First Cut on the Baldwin Side: Cooling refuse in the cut. 11/07/90
49	First Cut on the Baldwin Side: Stockpiling cooled refuse on the Jones disposal area. 11/07/90
50	First Cut on the Baldwin Side: Looking down the cut toward the sand stockpile and the Jones disposal area. 11/08/90
51	First Cut on the Baldwin Side: Laborer and dozer operator are engulfed in a cloud of ash and steam as a stream of water is directed at hot material in the bowl of the TS-14. 11/08/90
52	First Cut on the Baldwin Side: Smoke, steam and ash bellow up as the dozer mixes hot refuse and water is applied. 11/07/90
53	First Cut on the Baldwin Side: Starting to ramp down to the bottom of the cut. 11/08/90
54	First Cut on the Baldwin Side: This view of the pit wall appears to show burned refuse below a seal. 11/08/90
55	First Cut on the Baldwin Side: Zones of burned refuse are exposed as the waste is removed in layers. 11/08/90
56	First Cut on the Baldwin Side: Dozer mixing refuse. 11/08/90
57	First Cut on the Baldwin Side: Steam and ash raise as more hot material is exposed. 11/08/90
58	First Cut on the Baldwin Side: Spraying water at the end of the cut. 11/09/90
59	First Cut on the Baldwin Side: Water from the cooling operation has pooled at the bottom of the embankment. The embankment was over 12 feet deep in this area. 11/08/90
60 thru 64	Turning the Corner at the North End of the Baldwin Embankment: Quenching and mixing refuse. 11/09/90
65	Turning the Corner at the North End of the Baldwin Embankment: Excavated to the bottom. 11/09/90
66	Turning the Corner at the North End of the Baldwin Embankment: Peal off material to find the edge. 11/10/90
67	Turning the Corner at the North End of the Baldwin Embankment: Pushing hot material out to a quenching area. 11/10/90
68	Turning the Corner at the North End of the Baldwin Embankment: Exposing the limits of the embankment. 11/10/90
69	Turning the Corner at the North End of the Baldwin Embankment: Picking-up cool material and hauling it to a disposal area. 11/10/90
70	Turning the Corner at the North End of the Baldwin Embankment: Right on the edge of the embankment and on the shoulder of Mine Drive. 11/10/90
71	Turning the Corner at the North End of the Baldwin Embankment: Starting to fill the segment with compacted coal waste. 11/10/90
72	Turning the Corner at the North End of the Baldwin Embankment: Filling and compacting. 11/10/90
73	Turning the Corner at the North End of the Baldwin Embankment: Compacting. 11/10/90
74	Turning the Corner at the North End of the Baldwin Embankment: Hauling material up from the final pit. 11/12/90

75	Turning the Corner at the North End of the Baldwin Embankment: Compacting against the edge of Mine Drive. 11/10/90
76	Turning the Corner at the North End of the Baldwin Embankment: Backfilled. 11/12/90
77	Final Cut: Cooling material at the south end of the final cut. 11/10/90
78	Final Cut: Dozer and scraper working of a hot spot. 11/10/90
79	Final Cut: Excavating at the north end. 11/10/90
80	Final Cut: Cooling and Mixing. 11/10/90
81	Excavating in the final cut. Note the stockpiled material to the right. 11/12/90
82	Final Cut: The scraper is hauling refuse to the north end and returning over the top of material stockpiled over the fill in the first cut. 11/12/90
83	Final Cut: Looking to the north as material is pealed off the side. 11/12/90
84 thru 85	Final cut: Loading in the cut. 11/10/90
86	Final cut: Getting to the bottom of the embankment. 11/10/90
87	Final Cut: Taking refuse out of stockpile. 11/12/90
88	Filling the final pit with stockpiled coal waste. 11/12/90
89	Scraper travels over a compacted layer. 11/12/90
90	Compacting a fill section by wheel rolling. 11/12/90
91	Field Repairs. 11/12/90
92	Perforated pipe exposed as a section of Baldwin's drain field is removed. 11/12/90
93 thru 98	Limit of the excavation near the structures owned by Bert Baldwin. The natural ground has been exposed all along this wall, although some coal slack was left in-place in shallow swales. 11/12/90
99	Series of photos showing the final pit wall along the edge of Mine Drive. A buried telephone cable is within 18-inches of the pit limits. 11/10/90
100	Grading the surface of the rebuilt refuse pile. 11/12/90
101	Looking from the bank of the Musselshell River at the grading operation. 11/12/90
102	Recontouring the disposal area. 11/12/90
103	Grading and filling along the margin of the disposal area. 11/12/90
104	Delivering lime. 11/12/90
105	Spreading lime. 11/13/90
106	Raking lime with bucket teeth. 11/13/90
107	Taking sand out of stockpile. 11/13/90
108 thru 110	Spreading sand over the limed refuse. 11/13/90
111	Dozer back-dragging sand to cover coal waste and blend contours. 11/13/90
112	Loading topsoil at a pit located 6 miles from the project site. 11/15/90
113	Delivering topsoil. 11/15/90
114	Spreading topsoil over the sand seal. 11/15/90
115 thru 116	Spreading topsoil over the sand seal. 11/16/90
117	Looking at the topsoiled area from near the Jones residence. 11/19/90
118	Looking at the area where the drain field was relocated on Bert Baldwin's property. 11/19/90
119	Spreading fertilizer. 11/19/90
120	Drill Seeding. 11/19/90
121	Hay stacked on site waiting to be use for mulch. 11/19/90
122	Blowing hay mulch. 11/19/90
123	Crimping mulch. 11/19/90
124	Crimped surface. 11/19/90
125	Single panel installed to tie in with existing fence. 11/20/90
126	New fence installed to replace section of fence that was removed. 11/20/90
127	Dilapidated shed believed to be sitting onto of thin layer of coal slack. 11/20/90
128	Old out-houses and pig sheds on the edge of the embankment and possibly sitting on a thin layer of coal slack. 11/20/90
129 thru 139	Various views of the completed project. 11/20/90

8.2 Photo Location Map



8.3 Photos/Slides

A sequence of photographs documenting the construction activities begins on the following page.

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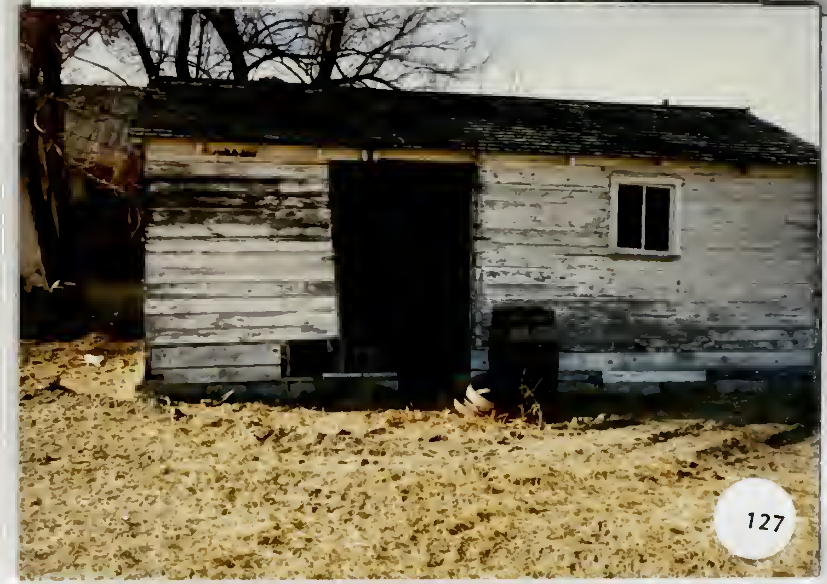
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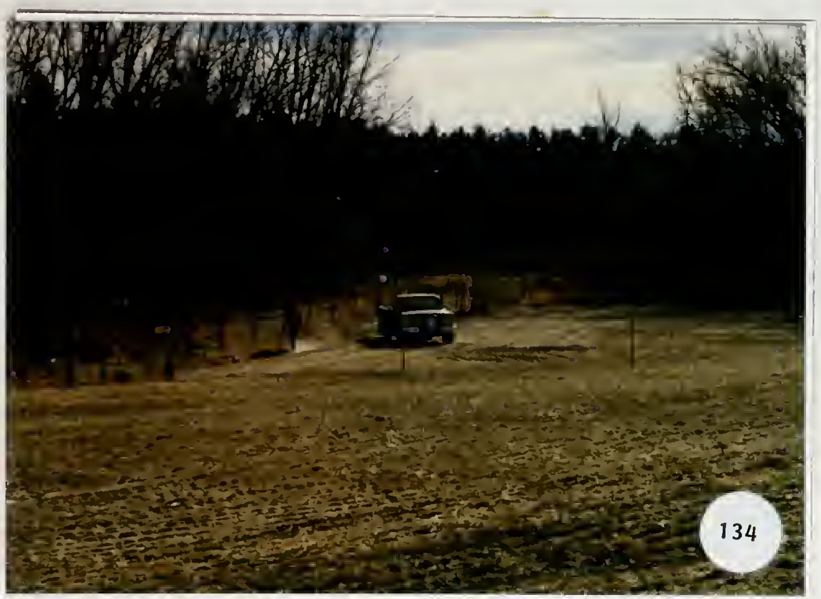
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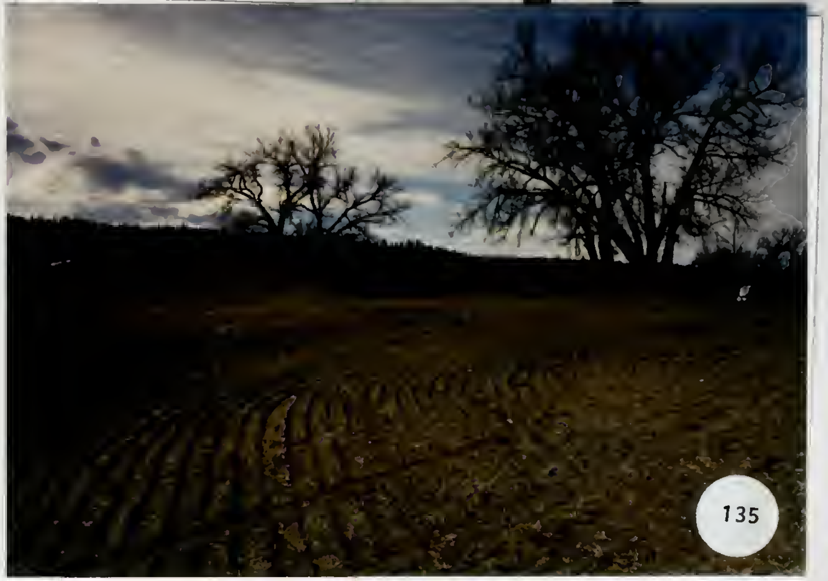
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ATTACHMENT 1

BID TABULATIONS

ROUNDUP FIRE PROJECT
MUSSELSHELL COUNTY, MONTANA

DSL/AMRB 90-0E03
DATE OCTOBER 25, 1990

BID TABULATIONS				ENGINEER'S ESTIMATE		BAXTER CONSTRUCTION		DONNES CONSTRUCTION			
Item Number	Estimated Quantity	Unit	Description	Unit Price	Total Price						
1.	1	LS	Mobilization	2,500.00	2,500.00	3,000.00	3,000.00	500.00	500.00		0.00
2.	1	No Pay	Provide Access	0.00	0.00	0.00	0.00	0.00	0.00		0.00
3.	1	LS	Clear and Grub	400.00	400.00	1,000.00	1,000.00	100.00	100.00		0.00
4.	1	LS	Debris Removal	1,000.00	1,000.00	1,200.00	1,200.00	500.00	500.00		0.00
5.	1	LS	Move Machinery	200.00	200.00	500.00	500.00	100.00	100.00		0.00
6.	350	CY	Salvage and Replace Topsoil	4.00	1,400.00	2.00	700.00	2.00	700.00		0.00
7.	800	CY	Excavate Disposal Pit	3.00	2,400.00	1.00	800.00	0.50	400.00		0.00
8.	3,700	CY	Waste Pile Disposal	5.00	18,500.00	3.75	13,875.00	2.00	7,400.00		0.00
9.	0.70	Acre	Lime Placement (9.8 tons)	1,200.00	840.00	1,857.20	1,300.04	1,500.00	1,050.00		0.00
10.	1	LS	Provide Water	400.00	400.00	1,500.00	1,500.00	1,800.00	1,800.00		0.00
11.	300	CY	Direct Place Topsoil	1.50	450.00	1.50	450.00	2.00	600.00		0.00
12.	1.0	Acre	Fertilize, Seed & Hay Mulch	1,000.00	1,000.00	1,500.00	1,500.00	1,000.00	1,000.00		0.00
13.	100	FT	Remove and Replace Fence	2.00	200.00	1.00	100.00	2.00	200.00		0.00
14.	1	Each	Farm Fence - Single Panel	75.00	75.00	60.00	60.00	100.00	100.00		0.00
			TOTAL AMOUNT		29,365.00		25,985.04		14,450.00		0.00

ATTACHMENT 2

CHANGE ORDERS

CHANGE ORDER

ORDER NO: 1

PROJECT TITLE: ROUNDUP FIRE PROJECT

MONT A/E or DSL-AMRB: 90-E03

CONTRACT DATE: NOVEMBER 1, 1990

OWNER: STATE OF MONTANA, DEPARTMENT OF STATE LANDS

CONTRACTOR: DONNES CONSTRUCTION

Change Orders must be accompanied by an itemized cost breakdown. You are hereby requested to comply with the following changes from the Contract Documents. (Show separate costs for materials, labor, equipment, and miscellaneous. Show percent where applicable.)

ITEM NO.	DESCRIPTION OF CHANGES - ESTIMATED QUANTITIES & UNITS	COST OF CHANGES					TOTAL COST
		MAT'LS.	LABOR	EQUIP.	MISC.	TOTAL UNIT COST	
1	MOBILIZE TS-14 SCRAPER (NEGOTIATED)					500.00	500.00
2	CLEAR & GRUB ADDITIONAL AREAS (NEGOTIATED)					500.00	500.00
3	DEBRIS BURNING & BURIAL (NEGOTIATED)					500.00	500.00
4	PROVIDE COVER SOIL - 800 CY					10.00	8,000.00
5	ADDITIONAL COAL REFUSE DISPOSAL - 4,680 CY					3.00	14,040.00
6	PROVIDE WATER FOR ADDITIONAL DISPOSAL (NEGOTIATED)					2,275.00	2,275.00
7	INSTALL FENCE - 130 FT					1.00	130.00
8	REPAIR DRAIN FIELD (NEGOTIATED)					340.00	340.00
9	BID QUANTITY ADJUSTMENTS REFLECTING ACTUAL QUANTITIES AT CONTRACT UNIT PRICES						5,216.00

TOTAL COST - MATERIALS, LABOR, EQUIPMENT & MISC.	0.00
OVERHEAD & PROFIT @ ____ %	0.00
GRAND TOTAL - THIS CHANGE ORDER	$31,501.00

Original Contract Price	$14,450.00
Current Contract Price Adjusted by Previous Change Order	N/A
Cost this Change Order (+ or -)	31,501.00
New Contract Price including this Change Order	$45,951.00

The completion date as set forth in the Contract Documents shall be (unchanged, increased, decreased) by 0 calendar days.

The date for completion of all work will be NOVEMBER 22, 1990.

Description and Justification for Change:

1. ADDITIONAL EQUIPMENT REQUIRED BY CHANGE IN SCOPE OF PROJECT, ie. INCREASED STOCKPILING AND WASTE HANDLING REQUIREMENTS.
2. INCREASED DISPOSAL REQUIREMENTS REQUIRED AN EXTENSION OF THE DISTURBANCE AREA INTO AREAS COVERED WITH BRUSH AND COTTONWOOD TREES.
3. LARGE QUANTITIES OF DEBRIS WERE DUMPED ALONG THE EDGE OF THE COAL WASTE EMBANKMENT. THE QUANTITY OF DEBRIS WHICH WAS UNCOVERED GREATLY EXCEEDED THE ANTICIPATED QUANTITY REQUIRING A CHANGE IN THE DISPOSAL REQUIREMENTS.
4. A SUITABLE COVER SOIL WAS NOT AVAILABLE ON SITE. TOPSOIL WAS ACQUIRED FROM AN EXISTING TOPSOIL PIT 6 MILES FROM THE SITE.
5. DEEPER THAN ANTICIPATED DEPTHS OF COAL SLACK REQUIRED LONGER HAUL DISTANCES AND LARGER EXCAVATIONS. THE CONTRACTOR WOULD NOT AGREE TO HANDLE THIS MATERIAL AT THE UNIT PRICE BID, THEREFORE, A PRICE WAS NEGOTIATED FOR COAL SLACK IN EXCESS OF THE ORIGINAL CONTRACT QUANTITY.
6. GREATER THAN ANTICIPATED QUANTITIES OF COAL SLACK REQUIRED A SUBSTANTIAL MODIFICATION OF THE ORIGINAL PUMPING SYSTEM AND ADDITIONAL OPERATING TIME.
7. ORIGINAL FENCE COULD NOT BE REPLACED. NEW FENCE WAS INSTALLED.
8. A PORTION OF BERT BALDWIN'S DRAIN FIELD WENT THROUGH THE WASTE EMBANKMENT. THIS PORTION WAS RE-ROUTED.

SEE ATTACHED FOR ITEM 9

SURETY CONSENT

The Surety hereby consents to the aforementioned Contract Change Order and agrees that its bond or bonds shall apply and extend to the Contract as thereby modified or amended per this Change Order. The Principal and the Surety further agree that on or after execution of this consent, the penalty of the applicable Performance Bonds or Bonds is hereby increased by $31,501.00 (100% of the Change Order amount) and the penalty of the applicable Labor and Material Bond or Bonds is hereby increased by $31,501.00 (100% of the Change Order amount).

COUNTERSIGNED BY MONTANA
RESIDENT AGENT

FBS Insurance Montana, Inc.
FBS Insurance Billings
Countersigned by:
Kip T. Vandeventer
Montana Resident Agent

SURETY

Great American Insurance Company
By: Sylvia Tilzey
Sylvia Tilzey, Attorney-in-fact
Seal

Recommended by: David M. Mugia
Engineer
1-3-91
Date

Accepted by:
Contractor
1-3-91
Date

Approved by: Larry Mandell
Owner
1/7/91
Date

DMK

COMPUTATION TABLE FOR ITEM 9 BID QUANTITY ADJUSTMENTS

BID ITEM	MEASURED QUANTITY	CONTRACT QUANTITY	DIFFERENCE QUANTITY	UNIT PRICE	COST
SALVAGE & REPLACE TOPSOIL	2,158 CY	350	1,808	2.00	$3,616.00
EXCAVATE DISPOSAL PIT	1,600 CY	800	800	0.50	400.00
LIME PLACEMENT	1.3 ACRES	0.7	0.6	1,500.00	900.00
FERTILIZE, SEED & HAY MULCH	1.3 ACRES	1	0.3	1,000.00	300.00
					$5,216.00

ATTACHMENT 3

PAYMENT REQUESTS

PAYMENT REQUEST NO. 1

FROM 11/02/90 TO 11/20/90

PROJECT TITLE: ROUNDUP FIRE PROJECT

LOCATION: MUSSELSHELL COUNTY, MONTANA MONT A/E or DSL-AMRB: 90-E03

NAME OF CONTRACTOR: DONNES CONSTRUCTION

ADDRESS: 4002 MCGIRL ROAD, BILLINGS, MONTANA 59105

SUMMARY OF PROJECT STATUS

Amount of Original Contract		$ 14,450.00
Change Order No. 1	$ 31,501.00	
Change Order No.	$	
Change Order No.	$	
Amount of Approved Change Order(s)		$ 31,501.00
TOTAL CONTRACT AMOUNT		$ 45,951.00

Pay Request No.	Amount of Request
1	$45,951.00

Total Contract Amount Completed to Date	$ 45,951.00
Less Retainage (0 %)	$ 0.00
TOTAL AMOUNT EARNED TO DATE	$ 45,951.00
Less Previous Payments	$ 0.00
AMOUNT DUE THIS PAYMENT	$ 45,951.00
Less 1% Tax	$ 459.51
TOTAL DUE CONTRACTOR	$ 45,491.49

I certify that this claim is correct and just in all respects and that payment or credit has not been received.

DONNES CONSTRUCTION
Contractor

By Frank Donnes
Date 1-3-91

APPROVED BY:

MONTANA DEPARTMENT OF STATE LANDS, AMRB
Owner

By
Date 1/7/91

RECOMMENDED BY:

SPECTRUM ENGINEERING
Engineer

By David M.
Date 1-3-91

ITEMIZATION OF QUANTITIES AND COSTS

Item No.	Description	Contract Quantity	Contract Unit Price	Previous Quantity Requested	Current Quantity Completed	Total Quantity Completed to Date	Total Contract Amount Completed to Date	Amount Due this Payment
1.	Mobilization	1 LS	500.00		1	1	$ 500.00	$ 500.00
2.	Provide Access	1 No Pay	0.00		1	1	0.00	0.00
3.	Clear and Grub	1 LS	100.00		1	1	100.00	100.00
4.	Debris Removal	1 LS	500.00		1	1	500.00	500.00
5.	Move Machinery	1 LS	100.00		1	1	100.00	100.00
6.	Salvage and Replace Topsoil	350 CY	2.00		2,158	2,158	4,316.00	4,316.00
7.	Excavate Disposal Pit	800 CY	0.50		1,600	1,600	800.00	800.00
8.	Waste Pile Disposal	3,700 CY	2.00		3,700	3,700	7,400.00	7,400.00
9.	Lime Placement (9.8 tons)	0.7 Acre	1,500.00		1.3	1.3	1,950.00	1,950.00
10.	Provide Water	1 LS	1,800.00		1	1	1,800.00	1,800.00
11.	Direct Place Topsoil	300 CY	2.00		300	300	600.00	600.00
12.	Fertilize, Seed, & Hay Mulch	1.0 Acre	1,000.00		1.3	1.3	1,300.00	1,300.00
13.	Remove and Replace Fence	100 FT	2.00		100	100	200.00	200.00
14.	Farm Fence - Single Panel	1 Each	100.00		1	1	100.00	100.00
	Subtotal						$19,666.00	$19,666.00
	Change Order Items Not Included Above:							
	Change Order No. 1, Item 1	1 LS	500.00		1	1	$ 500.00	$ 500.00
	Change Order No. 1, Item 2	1 LS	500.00		1	1	500.00	500.00
	Change Order No. 1, Item 3	1 LS	500.00		1	1	500.00	500.00
	Change Order No. 1, Item 4	800 CY	10.00		800	800	8,000.00	8,000.00
	Change Order No. 1, Item 5	4,680 CY	3.00		4,680	4,680	14,040.00	14,040.00
	Change Order No. 1, Item 6	1 LS	2,275.00		1	1	2,275.00	2,275.00
	Change Order No. 1, Item 7	130 FT	1.00		130	130	130.00	130.00
	Change Order No. 1, Item 8	1 LS	340.00		1	1	340.00	340.00
	Subtotal Change Order Items:						$26,285.00	$26,285.00
	Materials on Site (Attach Schedule)	--	--	$	$	→	0.00	0.00
	TOTAL						$45,951.00	$45,951.00

ATTACHMENT 4

ANALYSIS OF CONSULTANT COSTS INCURRED

ANALYSIS OF CONSULTANT COSTS INCURRED
FOR THE MONTANA DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU
AMR PROJECT NUMBER: DSL-AMRB 90-E03
ROUNDUP FIRE PROJECT

DATE OF PREPARATION: JANUARY 11, 1991

ENGINEERING SERVICE	AMOUNT
DESIGN ENGINEERING:	
BID DOCUMENTS	$ 2,397.28
CONSTRUCTION ENGINEERING AND PROJECT ADMINISTRATION COST:	
INSPECTION	$ 7,145.70
ADMINISTRATION & REPORTS	4,981.64
SUBTOTAL CONSTRUCTION ENGINEERING COST:	$12,127.34
PROJECT ENGINEERING COST:	$14,524.62
CONSTRUCTION COST:	$45,951.00
TO CALCULATE PERCENTAGE ENGINEERING FEES TO CONSTRUCTION COST:	
DESIGN ENGINEERING/CONSTRUCTION COST	5.22%
CONSTRUCTION ENGINEERING/CONSTRUCTION COST	26.39%
TOTAL ENGINEERING COST/CONSTRUCTION COST	31.61%